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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/603,716 | 06/25/2003 | David R. Lumgair JR. | 2003B047 | 3449 |

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EXXONMOBIL CHEMICAL COMPANY
5200 BAYWAY DRIVE
P.O. BOX 2149
BAYTOWN, TX 77522-2149

EXAMINER

BULLOCK, IN SUK C

ART UNIT PAPER NUMBER

1764

DATE MAILED: 07/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|---------------------------------------|--|
| Office Action Summary | Application No. 10/603,716 | Applicant(s) LUMGAIR ET AL. | |
| | Examiner In Suk Bullock | Art Unit 1764 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 9-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 9-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

Claims 1-4, 7, 10, 12, 13, and 69 rejected under 35 U.S.C. 102(b) as being anticipated by Miller et al (6,403,854) are withdrawn in view of the amendment filed May 8, 2006.

The following is a new ground of rejection in response to the amendment.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

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under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-6 and 9-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller et al (6,403,854) in view of Van Egmond et al (7,060,866) or Shutt (7,030,284).

Miller discloses a process for reducing corrosion in an MTO effluent processing system comprising injecting a neutralization material such as caustic, ammonia, and amines into the first stage pumparound stream (col. 9, lines 10-22). The process comprises passing an effluent stream to a first stage quench tower of a two-stage quench zone. An overhead stream comprising the light olefins and a first stage bottoms stream comprising catalyst fines, impurities, and water is withdrawn from the first stage quench tower. A portion of the first stage bottoms stream is injected with a neutralizing stream and returned to an upper portion of the first stage quench tower as a quench pumparound stream. The cooled first stage overhead stream is passed to the second stage quench tower to separate the light olefins from water to provide a vapor product stream comprising light olefins and a purified water stream. A first portion of the purified water stream is returned to an upper portion of the first stage quench tower. A second portion of the purified water stream is cooled and returned to an upper portion of the second stage tower. A third portion of the purified water stream is passed to a water stripper column to provide a highly purified water stream. This highly purified water

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stream can be withdrawn for reuse anywhere in the process as pure water. The vapor product stream is compressed, passed to an adsorption zone and then passed to a caustic wash zone for removal of carbon dioxide. The resultant carbon dioxide free light olefin stream is passed to a dryer zone for the removal of water and passed to a conventional light olefin recovery zone. See col. 12, line 63 thru col. 14, line 52 and Figures 2-4.

The difference between Miller and the claimed invention is that (1) Miller compresses the olefin product stream followed by caustic washing and separation of ethylene and propylene whereas the claimed invention separates C3- stream from C4+ stream after compression and then contacts the C3- stream with caustic and (2) Miller does not disclose monitoring the pH of the condensed pumparound stream (claims 5 and 6).

Both Van Egmond and Shutt teach removing contaminants from oxygenate to olefin conversion effluent comprising the steps of compressing the effluent, separating ethylene and propylene as well as light boiling components from C4+ components, and directing the ethylene/propylene stream to a caustic wash (see Figure 1 and col. 19, line 45 to col. 20, line 26 in Van Egmond reference; Figure 1 and col. 17, lines 39-65 in Shutt reference).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Miller by first separating the desired products from the oxygenate conversion effluent and then purify the desired products by contacting with a caustic wash as taught by Van Egmond and Shutt

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because purifying the desired components instead of the entire effluent would require less amount of caustic wash and use less energy.

With respect to the claimed pH of the quench medium (claims 3 and 4), Miller discloses contacting the reactor effluent with a relatively pure aqueous stream and a neutralizing agent at the top of the first quench tower which reads upon Applicants' claimed quench medium (see col. 2, lines 51-56). Thus, the quench medium of Miller would inherently have a pH of at least 7.0.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Miller by including the step of monitoring the pH of the condensed pumparound stream since Miller has disclosed that corrosive material may build up in the quenching process. A skilled artisan would recognize that corrosive materials may be carried and/or formed throughout the process of Miller and would monitor the process for corrosion and add a neutralizing agent where it is needed to reduce corrosion to maintain the apparatus in maximum performance.

Response to Arguments

Applicant's arguments with respect to claims 1-6 and 9-16 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to In Suk Bullock whose telephone number is 571-272-5954. The examiner can normally be reached on Monday - Friday 6:00-2:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


I.B.


Michael Staciarola
Examiner
Center 1700